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ing $65,000 additional a year to man the military telegraphs, which will then be left without an operator, instead of saving $125,000.

Is it any wonder that the weather-predictions are not always verified? General Greely, confident that the Signal Office will soon be transferred to a civil department, in loyalty to the government, began, at the opening of the present fiscal year, some preparation for it, especially by training civilians in weather-predictions, detailing one on each alternate month. Professor Abbe was performing this duty in March; and although years ago, when he had long-continued practice, he was remarkably successful, he failed to foretell the great blizzard, of which something certainly ought to have been known in advance. Similar conspicuous failures this year may be explained in the same way.

A word ought to be said about the cold-wave predictions. These are an extension of the service within the past few years, and, as a knowledge in advance of sudden great changes of temperature is of great importance on account of its bearing on the health of the people and the safety of many kinds of property, these reports, a very large percentage of which have been verified, have become very popular.

THE POLYTECHNIC INSTITUTE.[1]

EVERY middle-aged inhabitant of the British Islands must recall more than one occasion when the mind of our country has been strongly stirred on the question of national defence. The adverse evidence of an expert, a rousing article in a newspaper, has often awakened general anxiety of more or less continuance, and been followed by more or less adequate results. But it is far more difficult to awaken any widespread concern on behalf of those great abiding national interests which it is our charge and heritage to defend. And yet there are signs of no uncertainty which must to all thoughtful and instructed minds, from many directions, suggest the question whether that industrial leadership which has hitherto made our small and crowded country the world's workshop, and almost the world's mart, is not slipping from us. This is a question not of more or less wealth or luxury, but of very livelihood to the masses of the people under the special conditions of our national existence. If work ceases to come to a workshop, there is nothing for it but prompt dispersal of the workmen. All authorities seem agreed that the population of five or six millions inhabiting England and Wales in the time of Queen Elizabeth represents pretty nearly what their areas can sustain as agricultural, self-supporting countries. But the population of England and Wales alone was shown by the census of 1881 to have reached nearly twenty-six millions; so that seven years ago there was in the southern half of Great Britain an excess of twenty millions above what the country could reasonably support, except as a community of artificers and traders, and general carriers, by import and export, of the world's merchandise. It needs only a glance into past history to see that this, while an enviable position for a nation while prosperity lasts, is practical extinction when the channels of commerce are turned, or lost advantages have transferred production to new centres. Macaulay's fancy picture of the New-Zealander sketching the ruins of St. Paul's from the broken arches of London Bridge seems of very little concern to the present citizen, whose ears are deafened with the ceaseless roar and traffic of the streets. And yet precisely that doom of silence and decay has befallen many a proud mother-city of which now "even the ruins have perished." It would far exceed present limits to show in detail how many articles of our own immemorial production we ourselves now largely import, because the foreign workman produces them better, or produces them at less cost. The evidence will be fresh in the recollection of the readers of this journal. Neither can they fail to recall with what persistence we have pointed out the remedy. There is but one real remedy, — the better training of the workman, and — if we may be allowed to say it — of his employer too. Every one who, without prejudice, has opportunity to watch a fair specimen of the British workman at his work must admit that the raw material is as good as ever it was; that, in the quantity and quality of the work he can turn out in a given time, few of any nationality can equal, and none surpass him. But in the training he receives, and in the opportunities of his receiving it, there is much left to be desired. And meantime there is not only the grave fear, but in many branches of industry the accomplished fact, that other nations may and do outstrip us in the race.

Perhaps there is some belated merit in seeing that now; but all honor to those who, with heart and means to labor towards the better training of our artisans, devoted themselves to the endeavor when the need for it was less comparatively obvious. Honor especially to one man, Mr. Quintin Hogg, who, close upon a quarter of a century ago, at an age when most young men are concentrating their best energies on cricket, or foot-ball, or lawn-tennis (all good things in their way), made it his life's task to raise the skilled workman of London, and furnish him more fully for his labor, for his own sake and for ours. Probably most of our readers know how that small enterprise has become a great one indeed, with the old Polytechnic for its present home and centre, and with a fuller variety of classes and branches, and with a greater comprehensiveness of scheme, than we can now attempt to describe. But all has hitherto rested on the shoulders, and been sustained by the purse, of Mr. Hogg himself, who, during the past six years, has spent, speaking broadly, some £100,000 in establishing and sustaining these admirable schools. But the time has now come when so great a burden, for the work's sake as well as for his own, should no longer depend upon the means and life of a single man; and there is now an opportunity of securing for the institute something like an adequate endowment. The charity commissioners have offered to endow it with £2,500 per annum on condition that the public find £35,000 as a supplementary fund. £18,000 have already been promised by the personal friends of the founder; but £17,000 still remain to be raised, — a large sum, no doubt, but a small one compared to our still unrivalled resources, and the national value of the institute, not only for its own immediate results, but as a model for similar efforts in all the great centres of our industry. Those who believe in science — that is, in faithfully accurate and exact knowledge — as the only sure basis for any national prosperity that is to bear the stress of the fierce competition of our times, are earnestly invited to make themselves acquainted with the work of the institute, and to contribute to its funds. Eighty-one thousand members and students have joined since it was moved to the Polytechnic, 309 Regent Street, in 1882. All donations or subscriptions will be thankfully received there, or by Mr. Quintin Hogg, 3 Cavendish Square, W.

[1] From *Nature* of May 24, 1888.

SCIENTIFIC NEWS IN WASHINGTON.

Tricks of Indian Jugglery. — The May Fogs on the Atlantic.

Indian Jugglery.

THE feature of the evening at one of the late meetings of the Anthropological Society was a paper by Col. Garrick Mallory on 'Algonkin Glyphs on Bark and Stone.' The paper also dealt briefly with some related subjects, and will form a part of the annual report of the Bureau of Ethnology. The following is a brief chapter on 'Indian Jugglery,' extracted from this paper: —

"Paul Beaulieu, an Ojibwa of mixed blood, present interpreter at White Earth Agency, gave me his experience with a Jossakeed, at Leech Lake, about the year 1858. The reports of wonderful performances reached the agency, and, as Beaulieu had no faith in the jugglers, he offered to wager one hundred dollars, a large sum, then and there, against goods of equal value, that the juggler could not perform satisfactorily one of the tricks of his repertoire to be selected by him (Beaulieu) in the presence of himself and a committee consisting of his friends.

"The wager was accepted, with the result to be described.

"A medicine lodge was made. Four strong poles were planted deep in the ground, rising to an elevation of at least ten or twelve feet; one of them having the branches remaining and rising a little beyond its fellows, this being the indication of a Jossakeed as distinguished from a Medé lodge. The interior diameter was less than four feet. The frame, which was inclined to the centre, was then filled in with intertwined twigs, and covered with blankets and birch-bark from the ground to the top, leaving an orifice of about a foot in diameter open for the ingress and egress of spirits and of the objects to be mentioned, but not large enough for the passage of a man's body.

"At one side of the bottom wrapping a flap was left for the entrance of the Jossakeed or Shaman.

"A committee of twelve was selected to see that no communication was possible between the Jossakeed and confederates. These twelve men were reliable people, one of them being the Episcopal clergyman of the reservation. The spectators were several hundreds in number, but stood off, not being allowed to approach.

"The Jossakeed then removed his clothing, until nothing remained upon his person but the breech-cloth. Beaulieu then took a rope (of his own selection for the purpose), and first tied and knotted one end about the ankles; the knees were then securely tied together; next the wrists; after which the arms were passed over the knees, and a billet of wood passed under the knees, thus securing and keeping the arms down motionless. The rope was then passed around the neck again and again, each time tied and knotted, so as to bring the face down upon the knees.

"A flat river-stone of black color — which was the Jossakeed Manedo or amulet — was left lying upon his thighs. The Jossakeed was then carried to the lodge, placed inside upon a mat on the ground, and the flap covering restored so as completely to hide him from view.

"Immediately loud thumping noises were heard, and the framework began to sway from side to side with great violence; whereupon the clergyman remarked that this was the work of the Evil One, and it was no place for him: so he left, and did not see the end. After a few minutes of violent movements and swaying of the lodge, accompanied by loud inarticulate noises, the motions gradually ceased, when the voice of the juggler was heard telling Beaulieu to go to the house of a friend near by, and get the rope. Now, Beaulieu, suspecting some joke was to be played upon him, directed the committee to be very careful not to permit any one to approach while he went for the rope, which he found at the place indicated, still tied exactly as he had placed it about the neck and extremities of the Jossakeed. He immediately returned, laid it down before the spectators, and requested of the Jossakeed to be allowed to look at him, which was granted, but with the understanding that Beaulieu was not to touch him.

"When the covering was pulled aside, the Jossakeed sat within the lodge, contentedly smoking his pipe, with no other object in sight than the black stone Manedo.

"Beaulieu paid his wager of one hundred dollars. An exhibition of similar pretended powers, also for a wager, was announced a short time later at Yellow-Medicine, Minn., to be given in the presence of a number of army people; but at the threat of the grand medicine-man of Leech Lake bands, who probably objected to interference with his lucrative monopoly, the event did not take place, and bets were declared off.

"At Odanah, on the Bad River Reservation, and at Bayfield, both in Wisconsin, I obtained some variants of the above performance as seen at different times and places and by several witnesses. For instance: the Shaman at one time was tied up much as before mentioned, but with all of his clothes on; a fish-net, however, being tied above his clothes, enveloping the whole person; and horse-bells were attached to his body, so as to indicate any motion. When examined afterwards, the clothing had been entirely stripped from his person, the nets and ropes and bells placed in a separate pile in the lodge, and the clothing itself was found by direction under a designated tree a mile off; the Indians of the committee, one of whom was my informant, running from the lodge at their highest speed to the tree, and there finding the clothing, and stating the impossibility of its being transported by any human agency in advance of their arrival. In another case, occurring at night, two lodges were built about twenty feet apart. About a hundred Indians surrounded the space occupied by the two lodges with lighted torches giving the brightness of day, and a line of bonfires was built and kept in flame over the space intervening between the two lodges. The levitation in this case was by the bound Shaman in one lodge being found unbound in the other.

"It should be noted that these stories relate to a time some forty or fifty years ago, before the tricks similar to those of the Davenport brothers had become known in the civilized portions of the United States. It is a still more important fact that the French missionaries in Canada, and the early settlers of New England, describe substantially the same performances when they met the Indians, all of whom belonged to the Algonkin stock. So remarkable and frequent were these performances of jugglery, that the French, in 1613, called the whole body of Indians on the Ottawa River, whom they met at a very early period, 'the sorcerers.' They were the tribes afterwards called Nipissing, and were the typical Algonkins. No suspicion of jugglery in the sense of deception appears to have been entertained by any of the earliest French and English writers. The severe Puritan and the ardent Catholic both considered that the exhibitions were real, and the work of the Devil. It is also worth mentioning that one of the derivations of the name 'Mic-mac' is connected with the word meaning 'sorcerer;' so that the known practices of this character having an important effect upon the life of the people extended from the Great Lakes to the extreme east of the continent. It was obvious to me, in cross-examining the various old men, that the performances of jugglery were in each case an exhibition of the pretended miraculous power of an individual, whereby he obtained a reputation above his rivals, and derived subsistence and authority, by the selling of charms and superhuman information. The charms or fetiches, which still are sold by a few who are yet believed in, are of three kinds, — to bring death or disease on an enemy, to lure an enemy into an ambush, and to create sexual love."

The Unusual Prevalence of Fog during May.

The belt of frequent fogs during the past month, as shown graphically on the Pilot Chart for June, extended well up into the Gulf of St. Lawrence, and across the Atlantic from shore to shore. While the amount encountered off the Grand Banks and the coast to the westward is but little in excess of the normal for May, yet such great frequency of dense fog-banks east of the 40th meridian is very unusual. It may be attributed almost entirely to the unusual prevalence in that quarter of the ocean of southerly winds, which lasted for fourteen days during the first two decades of the month. These winds bring the warm, moist atmosphere from lower latitudes far to the northward, and into contact with the colder air of more northerly regions, this contact resulting in the precipitation of the moisture in the form of fog. Adding to this the fact that most of the depressions noted during the month passed well north of the 50th parallel after reaching the 40th meridian, thus lessening the clearing effect of their north-westerly winds, it will be seen very readily that the conditions were peculiarly favorable to the development of fog along the transatlantic routes.

Early in the month, small patches of fog were reported, also, to the westward of Bermuda, about the 70th meridian, accompanying north-westerly winds blowing toward a slight depression in about 32° north and 63° west, on the 2d and 3d. The dense fog along the coast north of Hatteras on the 6th, which led to the collision between the British steamship 'Benison' and the American steamship 'Eureka,' by which the latter was sunk fifty-six miles east-south-east from Cape Henry, was due to the prevalence of southerly winds in the western quadrants of an area of high barometer about the Bermudas, which, blowing up the coast from over the Gulf Stream, came into contact with the cold water of the inshore current, with the usual result.

MENTAL SCIENCE.

Illustration of the Play-Instinct.

AN article entitled 'The Story of a Sand-Pile' would not at once suggest any thing of interest to the psychologist; nevertheless the story as told by Prof. G. Stanley Hall (*Scribner's Magazine*, June, 1888) is full of suggestiveness to one approaching the study of mind with an appreciation of all the various aspects that mental phenomena assume in the world of nature. The story of the 'sand-pile' tells of two boys who had the advantage of playing with a load of sand placed for that purpose in the back-yard. This at once became the centre of all their interests, and by a gradual growth assumed the appearance of a miniature community. Roads were laid out, coal placed in the ground to be afterward discovered, and a sort of cave-dwelling erected. The next summer the evolution went on, fortunately undisturbed by parental suggestions.